

The History of Avian Medicine
in the United States
VI. The Role of the Extension Veterinarian
in Furthering the Progress
of Avian Medicine

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“Extension specialists in veterinary medicine correlate and integrate their work with the services of the local veterinarians and livestock specialists, in order to carry the results of research to livestock owners and to develop and formulate plans for preventing and reducing livestock losses caused by disease.” — From the Report of Dean C. S. Bryan, School of Veterinary Medicine, to the President of Michigan State College, 1948. (JAVMA, Feb., 1950:131).

“An extension veterinarian is one who interprets the findings of research and evaluates them for immediate and future application to practical livestock production. Extension veterinarians sometimes find it necessary to preach in the wilderness. They go into places where qualified veterinary practitioners do not exist” (8).

Those opening statements are well known to many readers of *Avian Diseases* but may be new to some. Extension veterinarians in the United States are not numerous — about 100 — but the historical heritage they represent is a story that should be emphasized. The American concept of off-campus education for all age groups and the practical field demonstration of research findings is of great importance in the building of American agriculture.

The first milestone was the establishment of the U. S. Department of Agriculture, during Lincoln's presidency, in 1862, fol-

lowed by the establishment of the Land-Grant College and University System. The idea of research as a basis for courses of instruction became prevalent. The pressure was followed by passage, in 1887, of the Hatch Act. That act authorized the establishment of an agricultural experiment station in connection with one of the colleges established in each state under the Land-Grant College Act of 1862. The appropriation was small — only about \$15,000 for the first year. The next major building-block of developing federal support of agriculture was passage of the Smith-Lever Act, in 1914, which authorized Cooperative Extension work in Agriculture and Home Economics (10). The early history of farm demonstrations, farmer institutes, and diverse attempts to help rural residents of all ages before the Smith-Lever Act is worthy of further study for those interested (11). The present-day work and policies of the Cooperative State-Federal Extension Service in Agriculture and Home Economics has been documented (10).

VETERINARY MEDICAL EXTENSION WORK

H. G. Geyer, a veterinarian with the extension service in Washington, D.C., kindly provided me with a current list of the 106 extension veterinarians in the U. S. He stated that, in general, when a state employed its first extension veterinarian, he served all species, with emphasis on large animals. As demands and needs increased, additional veterinarians were employed for special attention to a single species. Proceedings of a Second National Workshop for Extension Veterinarians, held June 10–12, 1963, at Iowa State University, indicate that in that year there were about 19 extension veterinarians, serving 17 states. Dr. Geyer did not have precise information but indicated that Billings of Minnesota was one of the first poultry extension veterinarians, appointed in 1922. A. S. ("Rosy") Rosenwald, now retired, joined the California extension service in the 1940's, as did Chester ("Chic") D. Lee in Iowa.

Extension work is based largely on research, and, before the employment of USDA poultry disease extension specialists, the veterinarians in poultry-disease research and in diagnostic laboratory work were the pioneers in extending practical disease-control information to the poultry industry. Veterinarians in poultry-disease research and diagnostic work have often provided the information to the regular poultry extension specialist, who, in turn, disseminated it to poultrymen.

In the northeast, poultry-disease extension work was stimulated by basic research and a book on poultry diseases by Raymond Pearl and associates at the University of Maine, published in 1911; by the classical work on protozoan diseases by E. E. Tyzzer of Harvard and Leo F. Rettger of Yale University; and by Rettger's discovery, in 1899, of the cause of pullorum disease. The work of those men stimulated the state university diagnostic services, represented by such persons as Erwin Jungherr at the University of Connecticut; W. R. Hinshaw, Henry Van Roekel, and Kenneth Bullis of the University of Massachusetts; E. M. Gildow, C. L. Martin, and C. A. Bottorff of New Hampshire; W. T. Delaplane of Rhode Island and, later, Texas; F. L. Russell and E. R. Hitchner followed by J. Frank Witter of Maine; Fred Beaudette and James Black of Rutgers; H. R. Baker of Delaware; P. P. Levine of Cornell; and many others. All of those workers contributed part of their time to poultry-disease extension. They also provided information to such outstanding poultry extension specialists as Roy Jones of Connecticut, William Monahan and Gay "Chick" Klein of Massachusetts, and Frank Reed of Maine. It was this northeast group that organized the Conference of Laboratory Workers in Pullorum Disease, which later became the Northeastern Conference on Avian Diseases, pioneering the first successful program for controlling pullorum disease and fowl typhoid.

B. F. Kaupp's book on "Poultry Diseases," published in 1914, was used extensively by practical poultrymen. A. R. Ward and B. A. Gallagher, in 1917, published a standard reference textbook on poultry diseases. Among early leaders in poultry-disease research that included extension and later led to the employment of poultry extension veterinarians were H. J. Stafseth of Michigan State, B. S. Pomeroy of the University of Minnesota, E. L. Stubbs of the University of Pennsylvania, E. P. Johnson of the University of Virginia, L. Van Es of North Dakota and Nebraska, C. A. Brandly of Kansas and the University of Illinois, J. R. Beach and W. R. Hinshaw of the University of California, and W. T. Johnson of Oregon.

A. S. Rosenwald analyzes the role of the Extension Veterinarian as follows:

"Extension veterinarians throughout the country, aided by and with the help of experiment station workers who had the interest of the poultry industries in mind, had put considerable time to the development of information and the application of research to solving problems of practical and economic importance. Certainly

the early work of J. R. Beach and W. R. Hinshaw here at the University of California, the pioneering work of Chauncey Sawyer at Washington State or Western Washington Experiment Station, and particularly the researches and applications of Walter T. Johnson at Oregon State University in control of fowl pox and the development of information and control procedures for avian coccidiosis stand out as the application of research findings to agriculture. D. E. Madsen at Utah and his successors also contributed to solving industry problems. Another individual who stands out as one of the earlier contributors to extension teaching and extension programs was C. D. Lee at Iowa State University. Dr. Lee was doing part-time extension work but accepted a total appointment in extension in 1948.

"All of these aforementioned individuals, however, were members of the Departments of Veterinary Science or Poultry Science of various land grant colleges and were employed by these universities as professors and members of the Agricultural Experiment Station staffs. With the exception of Washington State and Iowa State University all were members of land grant colleges which did not support a veterinary school, and hence they were within the scope of the Colleges of Agriculture and the land grant college system and agricultural experiment stations."

One of the popular functions for veterinarians during that early development was the provision by the states of special short courses on poultry diseases. In many states such meetings were held annually. Examples are the New Hampshire Poultry Health Conference and the California Poultry Health Symposium.

The value of veterinary research and veterinary extension bulletins on animal diseases published soon after 1918 at the several state colleges was questioned by some authors (9). In addition, in later years, veterinary medical scientists, practitioners, military veterinarians, and extension veterinarians had to deal with public-relations problems with the veterinary medical profession (1,2,3).

During the twenties a few veterinarians became poultry practitioners. C. M. Carpenter practiced in Petaluma, California, in 1924, and later in southern California. W. H. Dungan was D. E. Davis' partner in the well-publicized Chicken Pharmacy in Petaluma. Arthur D. Goldhaft operated a specialized poultry practice in Vineland, N.J. Others were F. C. Tucker of Claypool, Indiana; M. R. Chapman of Sherwood, Oregon; and E. S. Weisner of Goshen, Indiana. These practitioners were to a great extent responsible for educating and serving the poultry industry and in this sense were contributors to poultry extension.

Table 1. Allotments of funds from all sources for cooperative agricultural extension work, 1914-15 to 1922-23, for poultry and animal disease.^A

Year	Poultry	Animal diseases
1914-15	19,475	4,563
1915-16	47,328	21,936
1916-17	59,499	44,216
1917-18	70,403	31,777
1918-19	199,442	71,679
1919-20	151,162	63,201
1920-21	209,454	36,533
1921-22	237,385	39,675
1922-23	254,278	36,605

^ASource: True, A.: ref. cited.

State diagnostic laboratories. The next significant development in advancing the role of the veterinary practitioner and extension veterinarian was the development of animal-disease diagnostic laboratories at state universities (7,12). In 1923 there were only 3 veterinary pathologists and one practicing veterinarian devoting full time to poultry diseases (5). Before World War II, nearly every state had a laboratory with one or more workers, but an extensive expansion followed the war. Rapid advances in poultry breeding, feeding, and management—as well as in disease control—were a constant companion in the extension veterinarian's work. Therefore, extension work in poultry diseases was of necessity a cooperative venture with other poultry extension specialists. Mailings of bulletins and leaflets, and use of field trips and personal conferences with poultry producers and county extension personnel, were common.

In 1928 the Poultry Section of the AVMA was established and the Northeastern Conference of Laboratory Workers in Pullorum Disease Control was formed. Since 1957 the latter organization has been called the Northeastern Conference of Avian Diseases (6). In addition, the North Central, Western, and Southwestern regional conferences were formed in the U. S. (Fig. 1). A major effort was directed toward the elimination of pullorum disease. In that campaign many laymen were trained at an "Annual Pullorum Testers School" to help in the state and national programs. Other national developments aiding poultry practice were the development of the Poultry Disease Section of the Poultry Science Association, U. S. Livestock Sanitary Association (now U. S. Animal Health Association), the American Association of Avian Path-

ologists, and publication of the journal *Avian Diseases*. I mention the national veterinary medical organizations in poultry diseases to stress that extension veterinarians' work was strengthened by such organizations. Table 1 lists some of the early budgets for poultry extension and extension work in animal diseases of all species.

EXAMPLES OF POULTRY EXTENSION WORK

To learn of extension work in poultry diseases, I contacted each state employing an extension veterinarian. Not all states replied. The following includes examples from several states that did furnish reports:

California. The establishment in 1946 of the position of Extension Poultry Pathologist by the University of California and the



Fig. 1. Organized first annual North Central Poultry Disease Conference, in 1950 at the University of Minnesota.

1st row, left to right, P. C. Johnson, B. C. Jenkins, A. D. McDonald, C. D. Lee, B. S. Pomeroy, L. C. Heemstra, Paul Zumbro.

2nd row, left to right, Lloyd Farness, J. E. Williams, J. O. Alberts, R. C. Belding.

3rd row, left to right, W. H. Patton, A. A. Erdmann, L. E. Erwin, L. L. Dunn, George Holt, Noel Hall.

4th row, left to right, Wilson Henderson, Donald Eveleth, Florence Jones, Mary Ann Malinski.

5th row, left to right, S. C. Benbrook, unidentified, L. T. Ausherman, W. K. Dyer, R. Fenstermacher, Carl Brandly, unidentified.

appointment of A. S. Rosenwald to the position started a new era in veterinary extension. Except for work by Billings with turkeys in Minnesota and the limited time devoted to poultry disease extension by Davis, Black, and Lumb in the 1920's, previous work with the poultry industry was done by extension veterinarians on a part-time basis with other livestock problems or in connection with part-time teaching, research, and diagnostic work.

According to Rosenwald, the philosophy of the poultry extension veterinarian in California differs from that in other states although the objectives are basically the same. He states that the extension philosophy is educational rather than regulatory, and that effective programs should be supported through educational efforts. The extension veterinarian must not only carry out the role of an educator but also must do considerable investigative work, in a sense very much as did earlier workers in the experiment stations. To quote Rosenwald, "Veterinary extension is regarded as adult education and in California, as well as on a good part of the west coast, more emphasis is put on working with the production industries both in livestock and poultry than as purveyors of continuing education for veterinary practitioners. This is not to say that extension veterinarians do not work as closely as possible with practicing veterinarians, but particularly in the field of poultry other than pet birds these practitioners are few and far between.

"While the extension program in California may differ from that in other states in the assignment of highly specialized extension workers at the county level, the program in avian medicine is based on this particular asset. Early programs which were initiated shortly after World War II included the assignment of about ten additional farm advisors (county agents) whose major assignment was in the field of poultry husbandry and with whom the extension poultry pathologist worked very closely. In 1948 the AVMA annual meeting was held in San Francisco and the occasion was one at which about 45 or 50 veterinarians interested in poultry got together at Venito's restaurant for a long evening of discussion following a good Italian meal. Such notables as F. R. Beaudette, Phil Levine, C. A. Bottorff, W. R. Hinshaw, J. R. Beach, Erwin Jungherr, the Goldhafts, Floyd Markham, C. M. Hamilton, E. M. Dickinson, Ellis Jones, Paul DeLay, and many others were present. The major topic of discussion at that time was Newcastle disease vaccination and the development of vaccines, but it provided one of the early meetings which was followed I think by Dr.

C. A. Bottorff's initiation of the American Cyanamid or Lederle Conference for Avian Pathologists.

"In 1951 the Western Region meeting was initiated at a small gathering consisting of the extension veterinarian for poultry, the veterinarians in the experiment station, and representatives from the State Department of Agriculture. At that point it was decided to have an educational meeting in connection with the California Veterinary Medical Association spring meeting at Davis and present and discuss some poultry projects. Thus, the Western Poultry Disease Conference, the second oldest regional conference in the United States and probably the most international in scope was established. The extension poultry veterinarian has been the ongoing and continuing secretary.

"In California, as elsewhere, with the increased emphasis on funding through non-agricultural channels tending to move the experiment station staff into more basic research, extension's role as problem-solvers and interpreters of basic and goal-oriented research increased. Along with these changes there was a reduction in the number of firms producing poultry, although the total number of chicks, poults and eggs produced did not decrease. This meant that the audience for extension and the collaborators with whom we worked were fewer in number but influenced changes in a broader segment of the industry. Along with this there has been over the past ten to fifteen years a reduction in the numbers of veterinarians working with commercial poultry and an increased interest and concern for avian medicine as it affects pet and exotic avian species. Extension's activities, in the west at least and probably elsewhere, have centered on fewer but larger operations, while at the same time there was a need for preparation of guidelines and publications useful to the increasing number of hobby and backyard producers. Continuing education aids were necessary for companion animal practitioners who were increasingly being called upon to service the pet and exotic bird industries. This trend is still continuing and the scope of veterinary extension influence is changing here as nationally."

Georgia. The position of Extension Veterinarian-Avian Disease Specialist was created at the University of Georgia in 1969, according to Dr. Stanley A. Vezey, extension veterinarian. At the start, Vezey spent most of his time working in the field with poultry producers as an aid in solving and preventing disease prob-

lems. In addition, considerable time was spent on educational programs and seminars for the poultry industry. These seminars were of a specialized nature for producer groups — broilers, eggs, etc. Programs were also provided of a general nature, covering a wide spectrum of poultry diseases. Vezey recently received a joint appointment with the Department of Avian Medicine at the College of Veterinary Medicine. The major difference in his duties has been to conduct some research in avian diseases, both short- and long-term in nature.

Indiana. At the Purdue University School of Veterinary Medicine, R. W. Winterfield is a professor of avian diseases and devotes one-third of his time to extension activity in avian medicine. He has daily contact with the poultry industry and its disease problems in the diagnostic laboratory, and feels that this dual effort makes him of greater assistance on field problems. In addition, his extension work helps provide leads on needed research. Before entering academic work, Winterfield was engaged in avian disease research at the University of Massachusetts and had experience in commercial work. This prior experience was valuable to him in communicating with the poultry industry. Winterfield feels that the day of the full-time general livestock extension veterinarian may be limited. An extension veterinarian covering several species is generally less satisfactory than a specialist working with a single species.

Kansas. Kansas was one of the first states to employ full-time poultry extension veterinarians. In the early 1920's, D. E. Davis, who was trained under L. D. Bushnell, was the first extension veterinarian in Kansas. He spent full-time on poultry-disease problems. In 1923 he joined the staff of the University of California as director of the poultry pathology laboratory in Petaluma. Three years later he established a private poultry service in Petaluma called the "Chicken Pharmacy," a unique enterprise that was given publicity by Ripley's "Believe It or Not" cartoon, the *National Geographic*, and the Universal newsreel "Stranger than Fiction."

James Black succeeded Davis at Kansas State in 1923 and served until 1925, when he joined the staff at Rutgers University Poultry Department to manage the Vineland Diagnostic Laboratory. J. W. Lumb succeeded Black at Kansas State and served as extension veterinarian until his retirement. In his early days, Lumb

served full time with the poultry industry but later also worked with other livestock.

Michigan. H. J. Stafseth was responsible for most of the early poultry-disease extension work in Michigan. Later, E. S. Weisner, formerly a poultry extension specialist, earned his DVM at Michigan State. Supplemented with poultry-disease guidance from Stafseth, he became Michigan's first poultry extension veterinarian. He later went into specialized poultry practice in Goshen, Indiana.

Minnesota. Raymond B. Solac, extension veterinarian at the University of Minnesota, has been generous in supplying historical aspects of poultry diseases and extension work.

1922-1956. William A. Billings (Fig. 2) contributed much to the turkey-growing industry. His early leadership and teaching had a great deal to do with the development that the industry



Fig. 2. Dr. W. A. Billings, Extension Veterinarian, University of Minnesota, 1922-1956.

achieved.* Born in Canada, Billings graduated from Cornell University in veterinary medicine in 1918. He was an instructor in the Division of Veterinary Medicine. He was later appointed "Specialist-Veterinary" in agricultural extension on a full-time basis, on October 1, 1922. Billings achieved wide acclaim for his work in turkey production, where his relations with farm people were excellent. Practicing veterinarians were critical of him at times since his work required him to conduct hog-cholera vaccination schools. As a result, some in the profession considered that his work impinged on their practice.

Billings knew the audience of his day and had the ability to express ideas in an original and striking manner. The following, from his bulletin "Talking Turkey," is an example:

"Money spent on turkey tonics and the like is money wasted. There is no drug cure for blackhead or any of the common diseases of turkeys. When one gets into trouble, it is easy to turn to this or that guaranteed cure—all for relief. Even bright, smart growers often fall for these seductive claims made for many of these shot-gun panaceas. All I can say is this — the backbone of the turkey industry is based on common-sense, sanitation, and proper feed and management, *not on patent medicines*. Should you have trouble with disease in your flock, why not call on your local veterinarian rather than waste time and money on these fly-by-night concoctions."

Billings believed in the one-on-one approach to extension teaching. This he did by farm visits. "During the past four years every turkey grower in the county (Houston) has had a visit by the specialist and county agent." In another example: "It would probably be a good estimate to say that 75–80% of the practices that Dr. Billings recommends to the growers are put into practice (West Otter Tail County)." Billings' portrait is in the Poultry Hall of Fame in Washington, D.C. (6). A popular version of his career is presented in *Readers Digest*, December 1962, pages 168-173, titled "The Man Who Saved the Turkey Dinner."

1957–1979. In 1957 Raymond B. Solac was appointed extension veterinarian. By this time, the use of parasiticides in controlling histomoniasis and the near demise of the small poultry farm flock were accompanied by great changes in the turkey industry in Minnesota. Turkey raising became specialized in fewer and larger flocks. At about this time, the well-being of turkeys passed into

*See also Lund, E. The History of Avian Medicine in the United States. IV. Some Milestones in American Research on Poultry Parasites. *Avian Dis.* 21:461. 1977.

the hands of a small cadre of veterinarians who serviced the flocks either as private practitioners or salaried employees.

Solac also reminds us of persons who were not extension veterinarians yet have functioned as extension veterinarians in promoting avian medicine. An example is Ben Pomeroy, who for decades has given unstintingly of his time in the interest of avian medicine both in and out of organized veterinary extension effort.

Missouri. B. L. Mosely, Extension Veterinarian, began conducting educational meetings for owners of laying flocks and turkey producers in 1967. At present, fieldmen with commercial companies are in close touch with the diagnostic laboratory at the University of Missouri, Columbia, and use laboratory results for information on flock health for their meetings with producers.

Mosely states that chicken production has greatly decreased and turkey production increased during the past 15 to 20 years in Missouri. In that period, commercial feed companies and fieldmen have had most of the contact with producers. As a result, extension service has decreased. In earlier times, Mosely was able to attract 100 or more producers to attend a poultry meeting. That number of producers might represent the production of 500,000 to 1 million birds. At present, 24 to 30 may attend a similar meeting and represent the production of 1 to 2 million birds. In the 1930's, poultry-disease conferences were held at the University of Missouri and there was good attendance. These were held by the Department of Veterinary Science before a School of Veterinary Medicine was established. A. J. Durant, now 92 years old, was department chairman, and his principal interest was poultry disease. Sivert Erickson was also an early contributor to poultry-disease control in Missouri.

Nebraska. Alex Hogg, Extension Veterinarian, advised that L. Van Es was in the Veterinary Science Department from August 1918 until his retirement, in 1946. Many of his publications (22) were on poultry diseases. However, Hogg did not believe that extension work on poultry diseases was ever an active phase of work in Nebraska. The publications of Van Es were used extensively. In addition, Van Es was an ardent exponent of preventive medicine. O. D. Grace, director of the Nebraska Diagnostic Laboratory at Lincoln, has furnished valuable service to the industry in Nebraska.

Ohio. Glyde A. Marsh advised me that the first recorded extension activity in Ohio in poultry disease occurred in 1907. In a winter short course in agriculture at Ohio State University, lec-

tures were given on the subject. Since the faculty of the Animal Science Department conducting the short course had no one trained in poultry, practical poultrymen were invited to provide the instruction. In 1915, M. C. Kilpatrick was appointed the first Poultry Extension Specialist. From then until October 1953, the poultry extension specialist provided instruction in disease along with the general programs.

In 1953, Marsh was appointed Extension Specialist in Poultry Science with a full-time responsibility to develop a program in poultry disease. A unique feature was the provision that the program be designed to assist practitioners and improve their capacity for serving the poultry industry. In 1955, Marsh started some resident teaching in the College of Veterinary Medicine. At present he allots 55% of his time to extension.

According to Marsh, extension work in Ohio has made important contributions to avian medicine in three areas:

- 1) The success of some extension men resulted in the employment and development of commercial veterinarians by allied industry. In turn, their use was expanded beyond the area of poultry.

- 2) A second development was the concept of the serviceman. The first servicemen had few opportunities for training other than extension meetings or "schools." The serviceman was really a "captive" extension man. Much of his activity related to disease control.

- 3) The third contribution was the focus of workers in research and disease diagnosis on problems of the industry. That is reflected today in requests for information about the prevalence and importance of certain diseases and parasites.

Pennsylvania. The first extension poultry veterinarian at Pennsylvania State University (PSU) was recruited in the late 1950's or early 1960's. Earlier, avian medicine had been handled cooperatively by an extension poultry scientist, Carl Dawson, and by Stephen Gordeuk, avian pathologist at the State Poultry Diagnostic Laboratory at the University. In November 1964, L. Dwight Schwartz joined the veterinary extension staff at PSU as Extension Poultry Veterinarian. In the interim, extension avian medicine had been handled by resident avian pathologists.

At PSU, extension poultry and animal health coverage is integrated with the animal production programs, never handled as an entirely separate entity. That has led to many benefits, programs, and events, one of which is to do cooperative field research in-

volving agronomy, animal science, and veterinary science. All extension producer programs are multidisciplinary and are planned and organized by extension specialists including extension veterinarians. The team approach for avian medicine—extension and resident poultry veterinarians and extension poultry scientists—is used on investigation and resolution of production and poultry health problems, especially if they are of the nutritional or deficiency type. The extension team philosophy at PSU has produced phenomenal results by creating unity among the specialists and providing a more comprehensive service to the producer and the industry.

As a member of the Extension Poultry Program Planning Committee, Schwartz arranges for avian-medicine topics to be included in every educational program or seminar for poultry producers and flock service people. The poultry health topics are covered by him and other veterinarians in the department or guest veterinarians from other universities or from industry. In reciprocation, he presents lectures in other states at extension producer symposia for poultry servicemen's meetings. Currently, he spends 40 to 50% of his time as extension veterinarian on avian medicine.

Schwartz is author of the publication "Poultry Health Handbook," published in 1977. It has been widely distributed and used by major poultry companies, poultry science departments, and veterinary schools at several universities, and by flock supervisors of integrated poultry companies. He also contributed slides and script for the AAAP slide set on careers in avian medicine.

Vermont. W. D. Bolton spends 20% of his time on poultry-disease extension work. Major efforts are consultation with the Vermont Poultry Association and making contacts with poultry-farm operators desiring advice on health problems. The work is closely coordinated with the state diagnostic laboratory.

Virginia. Gordon A. MacInnis of Virginia Polytechnic Institute and State University (VPI-SU) reports that that institution has had a full-time extension veterinarian responsible for poultry health since 1966. Earlier, in the 1930's, E. P. Johnson conducted poultry extension work and also conducted research. In the mid-1950's, W. B. Gross and other poultry-health researchers prepared a leaflet entitled "Security Management." That leaflet, covering basic disease-prevention practices for poultry producers, was distributed through extension channels.

Gordon McNeille, the first poultry extension veterinarian, served until 1970. He was replaced by Clifton S. Douglass, who died in 1978. Since the poultry industry in Virginia was concentrated in the Shenandoah Valley, the major extension effort was directed there. Educational programs were held on a regular basis for upper and middle management and for poultry servicemen.

Probably the biggest contribution made to the poultry industry by their extension veterinarians was in the area of disease investigation and applied research. This was done through close cooperation between extension veterinarians and the disease research staff. Several years ago, Douglass, the poultry extension veterinarian, and three of the poultry research veterinarians won the VPI-SU Alumni Association Research Award for their development of an effective vaccine for hemorrhagic enteritis of turkeys.

Texas. Two full-time poultry extension veterinarians serve in Texas, according to Dr. James Armstrong, Project Leader in Veterinary Medicine and Veterinary Extension at College Station.

Iowa. Chester D. ("Chic") Lee became the poultry extension veterinarian in 1946 and was recognized nationally for his poultry disease-control program. Clifford Nelson is now poultry extension veterinarian in Iowa, following many years in practice, including poultry.

Illinois. To close with a personal note, I was employed as an extension veterinarian at the University of Illinois College of Veterinary Medicine from May 1, 1949, to August 1959. Two of us were responsible for disease prevention and control in all species. My colleague, M. E. Mansfield, and I were both graduates of Kansas State College School of Veterinary Medicine (now University). We had good courses in poultry management and poultry diseases, the latter taught by the renowned L. D. Bushnell. While I was a student at Kansas State, Loyal Payne was head of the Poultry Department. I also had the opportunity to meet the famous geneticist Donald Warren.

My first venture after employment was observation of a field trial of killed Newcastle disease vaccine in Quincy in a large broiler operation that Mansfield was conducting. Robert Graham (then Dean) had published extensively on poultry diseases, as did his replacement, Carl Brandly.

The most unusual poultry-disease extension meeting I remember was one that someone else scheduled for me. On arrival at the

meeting, in a courthouse in southern Illinois, I found that my assignment was to necropsy chickens in the main courtroom. I remember worrying mostly about getting feathers and blood on the floor! Dr. Carl Brandly also recalls one of his early field excursions in poultry-disease extension in Illinois. He necropsied hens from several farms, and all were infected with tuberculosis. One of our early poultry-disease extension programs in Illinois stressed the all-pullet flock to help eliminate avian tuberculosis. We were assisted in this educational program by a USDA area veterinarian engaged in bovine tuberculosis eradication. In most years during my extension work, we depended on research veterinarians in poultry diseases to conduct poultry-disease extension meetings at the county and state levels.

Past, Present, and Future. The danger in attempting to record historical facts in an article on poultry-disease extension is that many names and significant contributions will be missed. I accepted the assignment after encouragement from Carl Brandly and because of my interest in the subject. My attempt to write this account should be regarded as an overview. Many veterinarians have contributed to poultry-disease extension work and will continue to do so. It is my hope that the readers of *Avian Diseases* will feel that there can be no doubt that many extension veterinarians contributed to furthering the progress of avian medicine. Even though I may have failed to record some significant events, it is clear that the poultry-disease extension veterinarian in the United States has been dynamic. As I finish this article, I read that avian influenza caused a severe problem to the turkey industry during the latter half of 1978 in Minnesota (4). We remember the exotic Newcastle disease outbreak in California and the turkey ornithosis problem dealt with recently at poultry slaughter houses. The role of the extension veterinarian in poultry diseases and research — joint appointments — will probably increase in the future.

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